

## **First Announcement**

### **International Solar Concentrator Conference (SC<sup>2</sup>) for the Generation of Electricity or Hydrogen**

**November 10-14, 2003**

**Alice Springs, Australia**

## **BACKGROUND**

The International Solar Concentrator Conference (SC<sup>2</sup>) for the Generation of Electricity or Hydrogen will emphasize in-depth technical discussions of recent achievements in technologies for concentrating solar radiation for conversion to electricity or hydrogen, with primary emphasis on photovoltaic (PV) technologies. The recent development of very high efficiency (above 35%) solar cells, now widely used for powering satellites, demands a fresh look at the potential of solar concentrators for generating low cost electricity or hydrogen. With these developments solar electric concentrators could dramatically overtake (that is they could “leapfrog”) other PV technologies in the electric utility marketplace because of their low capital cost needs for manufacturing facilities and the ease with which their module size can be scaled up to large sizes. Concentrating solar energy also has advantages for the solar generation of hydrogen. In many countries around the world, researchers and engineers are developing solar concentrator technologies for entry into the electricity generation market and several have explored the use of concentrators for hydrogen production. The first conference on the subject of solar electric concentrators was originally scheduled for Marbella, Spain in October, 2001 but was rescheduled to May 2002 in New Orleans, Louisiana and proved to be an important opportunity for researchers and developers to share new and critically important information in order to stimulate projects in their own countries. This conference provides an opportunity to learn about the most current and significant research information on solar concentrators for generating electricity or hydrogen.

In April 2003, The United States Secretary of Energy, Spencer Abraham, announced an “International Partnership for the Hydrogen Economy.” This conference directly supports this partnership and its call “for the development of international collaboration in advanced research and development that will support the deployment of hydrogen energy technologies”.

## **WHEN AND WHERE**

November 10 - 14, 2003, in Alice Springs, Australia

The conference location offers several opportunities to researchers and developers of solar concentrator systems. It will include a visit to an operational 220 kW solar electric concentrator power station on aboriginal lands. In an example of international business collaboration common in today's world, this power station, built by the Australian company, Solar Systems, uses solar cells from a U.S. manufacturer, SunPower, in Sunnyvale, CA. Australian researchers were pioneers in the development of processes leading to the highest efficiency crystalline silicon solar cell designs now employed in today's solar concentrator systems. Australia also has several industry, university and government research efforts to generate hydrogen from solar concentrator technologies. This conference provides an opportunity to learn first hand about the Australian technologies and to share information with other international researchers and developers of solar concentrator technologies.

From a cultural viewpoint, the conference venue offers a field trip to aboriginal lands with a visit to Uluru (the traditional name for Ayers rock). Specifics on registration and logistical information for the Alice Springs Convention Centre will be available on the conference web site. (Visit [www.alicespringsconventioncentre.com.au](http://www.alicespringsconventioncentre.com.au))

## **OBJECTIVES**

The objectives of the conference are:

- To permit the sharing of new and critical research information leading to higher performance and lower electricity or hydrogen generation cost from solar concentrator technologies
- To encourage discussions of field experience of solar concentrator projects for development of more reliable technologies and improved technology standards
- To stimulate an exchange of views concerning entry markets appropriate for developing concentrator technologies
- To provide insight for further research planning on solar concentrator technologies

## **TOPIC AREAS**

The conference will consist of technical presentations providing the most current and significant information on solar concentrators. Invited speakers from private companies, universities, and laboratories around the world will discuss such topics as:

**Solar Cells** for high-flux concentrator systems (reflective or refractive), including studies on high efficiency cell materials and designs, their characterization, special measurement requirements, performance, long-term behavior, and cost.

**Receiver Packaging**, to respond to issues of flux non-uniformity, cell protection, mounting and interconnect bonding, passivation of cell interconnects, development of secondary optics, heat sinking, cell degradation, and reliability

**Optics**, such as reflective, refractive, holographic or secondary optics materials and designs providing high performance, reliability, and low cost

**Hydrogen Generation Pathways**, including use of water or carbon containing feedstocks, processes including electrolysis, thermolysis, and photolysis, and related hydrogen generation issues.

**Tracking**, using active or passive control schemes dealing with tracking accuracy, control logic, system protection, redundancy, and reliability.

**System Studies** from cost studies and designs for cells, optics, and tracking to total system manufacturing and engineering cost studies in support of high system performance and low cost for converting sunlight into electricity or hydrogen.

**Innovative Concentrator Concepts** involving non-conventional solar cells, optics, tracking, or system designs.

**Field Performance and Standards** measurements and evaluation of concentrator projects to permit realistic evaluation of overall system performance, system reliability and identification of design requirements that could lead to revised and better standards for testing or certifying solar concentrator systems.

**Related Technical Issues**, such as storage for electricity or hydrogen, solar resource data needs, fuel cell concepts (solid oxide, alkaline, PEM, etc.) including regenerative electrolyzer/fuel cell systems, hydrogen infrastructure, or others that may arise in some applications.

**Applications and Market** studies that might identify important entry points for the rapid development of solar electric concentrator technologies in sustainable energy markets.

**Economic Issues** arising from competing energy technologies, as well as discussions of investment needs for manufacturing facilities and field projects.

Many of these topic areas are relevant for other technology areas and selected presentations from acknowledged experts will allow an exchange of information and ideas that could benefit researchers and developers in both areas.

## **CALL FOR PRESENTATIONS**

Presentations are invited in the above topic areas and will be judged solely on the basis of an abstract that clearly explains the significance of the work. The research must be new, of high quality, and a significant contribution to the knowledge of solar concentrator technologies. The conference will cover the interests of university research, industry research and development, user communities such as electric utilities, and government-funded research. The focus will be on science and technology of solar concentrator technologies and topics can range from exploratory research through applied research, engineering, technology development, and application. Accepted abstracts will appear on the conference web site. Copies of both oral and poster presentations will be submitted at the conference for a CD-ROM compilation of all presentations. Acceptance of the abstract does not guarantee acceptance of the presentation for the CD-ROM. The conference language will be English. Abstracts are solicited now.

## **PREPARATION OF ABSTRACTS**

An abstract is required with enough information for reviewers to evaluate the significance of the paper. They should be entirely on one page (single-spaced text is appropriate) and must contain the following:

- Full title
- Name of author(s) and affiliation(s)
- Complete mailing address, e-mail address, telephone, and fax numbers for author designated for correspondence
- Concise statement of the objective or problem covered
- Significant results, important figures or tables
- Summary of important conclusions

Please mail or e-mail a copy of the abstract to:

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Abstract must be received by September 1, 2003. Instructions for poster presentations as well as CD-ROM guidelines will be sent only to the designated author. This author is responsible for informing the co-authors. The conference proceedings on a CD-ROM will be compiled and distributed to the conference registrants at a later date.

## INVITED PAPERS

Invited speakers will be listed in the next announcement but many program committee members will be making presentations.

## PROGRAM COMMITTEE

Robert D. McConnell, National Renewable Energy Laboratory, USA, Conference Chairman

John Turner, National Renewable Energy Laboratory, USA, Co-Chairman for Hydrogen Topics

John Lasich, Solar Systems Pty Ltd., Australia, Co-Chairman for Local Arrangements

Martha Symko-Davies, National Renewable Energy Laboratory, USA, Co-Chairman for Solar Electric Topics

Melody Mountz, National Renewable Energy Laboratory, USA Program Coordinator

V. M. Andreev, IOFFE Institut, St. Petersburg, Russia

K. Araki, Daido Steel, Japan

A. Bett, Fraunhofer ISE, Germany

A. Blakers, Australian National University

T. Bruton, BP Solar, UK

H. Gabler, Center for Solar Energy and Hydrogen Research, Germany  
V. Garboushian, Amonix, USA  
H. Hayden, Arizona Public Service, USA  
D. Holland, Solar Systems P/L, Australia  
L. Ji, Arizona State University, USA  
S. Kurtz, National Renewable Energy Laboratory, USA  
A. Lewandowski, National Renewable Energy Laboratory, USA  
I. Luque, INSPIRA, Spain  
A. Luzzi, Oxfuelcells, Australia  
U. Ortabasi, United Innovations, USA  
G. Sala, Universidad Politecnica de Madrid, Spain  
A. Sarno, ENEA, Italy  
R. Sherif, Spectrolab, USA  
A. Steinfeld, ETH, Switzerland  
R. Swanson, SunPower, USA  
K. Vojtechovsky, WaferTech, Czech Republic  
C. Whitaker, Endecon, USA

## SPONSORS

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